lowish. Coxæ and femora yellowish, the remainder of the legs fuscous yellowish. Genitalia: basal clasp segment with a long, thickly setose, narrowly triangular lobe at the internal basal angle; dorsal plate short, narrowly and slightly incised, the lobes produced laterally, roundly oblique and thickly setose; ventral plate long, broadly rounded; style long, expanded distally, broadly emarginate. Type Cecid 1395.

This interesting male was taken at Hazelton, Pa., June 12, 1910, by Dr. W. G. Dietz. This species is easily separated from previously characterized males by the extremely short basal portion of the stem of the fifth antennal segment

FOUNDATION OF SOME NEW GENERA AND SPECIES OF MUSCOID FLIES MAINLY ON REPRODUCTIVE AND EARLY-STAGE CHARACTERS.

By CHARLES H. T. TOWNSEND,

PIURA, PERU.

The adult specimens which serve as partial types of the following forms I have been unable to secure for description of their external characters. They were left by me in 1909 partly in the U. S. N. M. collection, and partly in the collection at the Gipsy Moth Parasite Laboratory, and all were properly labeled with TD numbers. It has been impossible as yet to locate them or have them sent to Peru, and therefore their full description must be deferred until some future time. Meanwhile the names are needed for use in the paper on the reproductive systems, eggs and first-stage maggots, to be published with figures under the title of "Contribution to a Thorough Knowledge of the Muscoid Flies." Therefore I propose here formally to found these several genera and species on descriptions as complete as it is possible for me to make them at this time, necessarily drawn mainly from the reproductive, egg and first-stage maggot structures. I believe that the forms can be unmistakably determined in each case from the characters and data given.

Plagiops littoralis, new species.

Plagiops littoralis gen. et sp. nov., TD738—Ann. E. S. Am., Vol. IV, pp. 131 and 141.

Numerous specimens were taken at Ocean Beach, across Biscayne Bay from Miami, Florida, Nov. 9 to 22, 1908, on the flowers and foliage of the dwarfed *Ernodea littoralis* growing in sand near the beach. The genus has been described, with the Peruvian species *meridionalis* as type. The external adult characters of the present species will be given later. This genus is the first and only form with a *Voria*-like venation to show a flattened macrotype egg, which is evidently deposited on the host. The egg is pearly-white, flattened-subovate, and of much smaller size than the ordinary flattened macrotype eggs. The chorion is neither reticulate nor furnished with operculum. A marked peculiarity of this genus is noted in the description of the reproductive system of *P. meridionalis* in Contr. Th. Knowl. Musc. Flies. The uterovagina is of ordinary size but more or less chitinized so as to exhibit much the appearance of a swollen spermatheca. It is furthermore normally telescoped within the base or proximal end of the very long tubular and chitinous ovipositor, and the ducts of the spermathecæ and tubular glands are very elongate to allow of this position of the uterovagina, since both the spermathecæ and the tubular glands themselves remain outside.

The fly looks like a very small *Voria*.

Type, TD738 (fly, slide of uterovagina and eggs).

Described from TD736, 737, 738, 749, 921, 932, 1085, 1087, 1088, etc.

Phasiopsis floridana, new genus and new species.

TD651—Ann. E. S. Am., Vol. IV, p. 131.

Numerous specimens taken by Mrs. Townsend and myself at Miami, Fla., Nov. 4 to 29, 1908. Most of the specimens were collected on herbage and flowers along the Biscayne Bay front, but the species was also taken on flowers of *Euthamia* some miles north of Miami. Seems to be intermediate between the Ectophasiinæ and Exoristini. The fly possesses well-developed macrochætæ and is probably to be classed with the Exoristini, but its habitus suggests Phasiid affinities and its egg-characters strongly approach those of *Trichopoda* and other Ectophasiinæ. Its external adult characters will be pointed out later. The eggs are flattened macrotype, but of much less than the ordinary size. They are light to dark brown in color while still in the ovarioles, and occur in two small clusters marking the ovaries and

massed against the posterior ventral plates. A dozen or so of these eggs occur in each ovary, indicating as many ovarioles, the ova developing successively. In one or two cases several eggs were found in the uterus or uterovagina next ovipositor. The dissections did not establish the presence or absence of incubating uterus, but such is probably not present. The Phasiid resemblances lie partly in the brownish color of the mature egg in the ovarioles, which is commonly seen in the Trichopodine flies. With the present exception no Exoristine flies are yet known with other than white or pearly-whitish eggs in the ovarioles, except possibly *Cyclotophrys anser* which deposits golden eggs. The egg is proportionately more elongate than that of *Exorista* and its allies, and may be described as narrowed elongate-subovate to subelliptical, but the mature chorion appears evenly bulged arc-like on the left side and more or less nearly straight on right side. This does not seem due to position of egg in the mount, the eggs all seeming to lie flat on their ventral surface. The micropyle and anal alveolæ are out of center in these eggs, indicating as do the preceding characters that the convex surface is laterodorsal. The chorion is without either operculum or reticulation. The egg is shown in Fig. 29 of Contr. Th. Knowl. Musc. Flies.

The fly resembles in size and general appearance a small specimen of *Chætolyga militaris* Walsh (commonly determined by Coquillett as *Winthemia quadripustulata*), but the latter has much broader and uncolored eggs.

Type, TD663 (fly, two slides of eggs).

Described from TD651, 663, 906, 1102, 1103, 1130, 1131, 1175, 1201, etc.

The present species is the type of the genus and also of the tribe Phasiopsini.

Neothelaira dexina, new genus and new species.

One female taken by Mr. F. B. Lowe near Swampscott, Mass., Aug. 29, 1908. This fly has a Pseudodexiine habitus, but apparently is to be classed in the Exoristinæ. Arista short and stout, third antennal joint long and slender, face oblique, head golden pollinose; abdomen elongate with long erect marginal and shorter discal bristles. Facialia quite bare; apical scutellar bristles weak and decussate, erect; next scutellar pair very long. Facial plate showing a slightly

prominent oral margin, the vibrissæ inserted a little above same. There appeared to be no uterus, and about thirty eggs were found in the ovarioles. The egg is flattened-subovate macrotype, whitish, probably without either reticulation or operculum.

Type, TD427 (fly and slide of eggs).

This is type of the genus and also of the group-unit *Neothelairina*.

Spathidexia clemonsi, new genus and new species.

TD371—Ann. E. S. Am., Vol. IV, p. 140.

One female, Melrose Highlands, Mass., Aug. 17, 1908, collected by Mr. D. H. Clemons, for whom it is named. This specimen has been determined by Mr. W. R. Thompson as *Thelairodes cinereicollis* V. d. W. It can not be that species, though it is probably the species so determined by Coquillett. So far as the description by B. & v. B. of *Thelairodes* goes, which is of the male only, it can not be positively referred to that genus. The female has a curved, blade-like larvipositor. The uterus contained about 110 eggs and maggots. The maggot is white, subcylindrical, quite elongate and only moderately stout, the cephalic end somewhat tapered, the anal end rounded and tipped with a circular patch of very small, short, stout spines. More or less complete circlets of smaller spines occur on the forward edge of each body segment except first and third, those of segments two and four being widened and band-like, those of five half as wide, the others still narrower. The cephalopharyngeal skeleton is stout but shortened, the upper wing of the pharyngeal sclerite being atrophied into a sharp curved spur, its lower wing and infrapharyngeal sclerite represented only by a small, short terminal spine, but the anterior or arm portion of the pharyngeal sclerite is widened. Hypostomal sclerite moderately short and stout, infrahypostomal curved-linear in profile. Mandibular sclerite much widened and dilated, showing in profile a shortened-subovate outline.

Type, TD371 (fly and slide of eggs and maggots).

This is type of both genus and tribe Spathidexiini.

Oxynops serratus, new genus and new species.

One female of this form was taken by Mrs. Townsend on herbage along Biscayne Bay front at Miami, Fla., Nov. 30, 1908. It is a small blackish form of Compsilurine habitus, and my notes mention it as having a long tail-like larvipositor and perhaps a piercing structure.

Its full characters will be given later. The uterus is very long and slender, filled with elongate white eggs and stout white maggots in single file. The maggot differs from the Compsilurine maggot in having six short double transverse ventral rows of miscroscopic faintly-colored platelets, minutely spined on their posterior and lateral edges, the spines all directed more or less posteriorly. There is also a transverse ventral bunched row of anal claw-like slender spines, besides the few usual stout dorsal anal stigmatal hooks or claws. The cephalopharyngeal skeleton differs from that of *Compsilura* in the pharyngeal sclerites being less developed and not arcuate in profile, the hypostomal and mandibular regions more elongated, and the mandibular sclerite curved hook-like near tip. The egg, maggot and cephalopharyngeal skeleton are shown in Figs. 68 to 72 of Contr. Th. Knowl. Mus. Flies.

Type, TD1282 (fly, three slides of eggs and maggots).

This is type of both genus and tribe Oxynopini.

Euzenilla aurea, new genus and new species.

Euzenilla aurea gen. et sp. nov., TD350—Ann. E. S. Am., Vol. IV, p. 148.

One female, found Aug. 15, 1908, at Gipsy Moth Parasite Laboratory, Melrose Highlands, Mass., inside large out-door cage (shown in Figs. 25 and 26, Tech. Ser. Bull. 12, pt. VI), where it had probably issued either from the earth or from some host brought in from the outside. Evidently a North American species. The fly is small and has the entire head, thorax and scutellum deeply golden-pollinose, only the abdomen being obscure or cinereous. The uterus contained about 75 to 100 maggots. The maggot is white, moderately slender, thickly and evenly beset over whole body with short spines except only at junctures of segments and on posterior half of dorsum. The cephalopharyngeal skeleton is slightly suggestive of the Dexiid type, but the pharyngeal sclerite is slightly widened and distinctly curved in profile, thus not in line with hypostomal and therefore never forming with the hypostomal sclerite a straight rod-like structure. Moreover, the mandibular sclerite is stout claw-like apically, the claw being notched on its superior edge, thus approaching the Zygosturmiine type. It slightly approaches the Sardioceratine type in having a very short and rudimentary pair of anal processes carrying the tracheæ. The maggot is shown in Fig. 76 of Contr. Th. Knowl. Musc. Flies.

Type, TD350 (fly and slide of eggs and maggots).

This species is type of both genus and tribe Euzenilliini.

Epidexia filamentosa, new genus and new species.

TD747—Ann. E. S. Am., Vol. IV, p. 146.

Various specimens taken on flowers and leaves of the dwarf *Ernodea littoralis* at Ocean Beach, across Biscayne Bay from Miami, Fla., Nov. 9 to 15, 1908. This is a small form, obscurely colored but with yellowish legs, of Pseudodexiine habitus and facialia ciliate; its full external adult characters will be given later. The eggs are microtype, flattened-subovate, black, chorion smooth and without either punctulation or reticulation. In all the balsam mounts of the eggs translucent filament-like and loop-like pendants are seen attached to the ventral surface. These are probably very delicate membranous appendages of the chorion whose function is to attach the egg more firmly to the leaf-surface. The uterus is very long and slender, and has a capacity of several thousands. The egg and chorion are shown in Figs. 126 to 130 of Contr. Th. Knowl. Musc. Flies.

Type, TD747 (fly, slides of eggs and dissection of uterus).

Described from TD747, '915, etc.

This species is type of the genus and also of the tribe Epidexiini.

Euceromasia spinosa, new genus and new species.

TD390—Ann. E. S. Am., Vol. IV, p. 146.

One female, North Andover, Mass., August 21, 1908, collected by Mr. D. H. Clemons. This small fly has been determined by Mr. W. R. Thompson as *Masicera* near *pauciseta*. It has discal and marginal abdominal bristles, and *Eusisyropa*-like abdomen and venation. The uterus was extremely long and coiled, and contained a thousand or more microtype eggs The egg is flattened and perfectly ovate, like a miniature egg of *Exorista* but golden or yellow in color. The yellow chorion appears thick, is reticulate in nearly perfect hexagons, and the periphery is sparsely set with erect short spines or pointed elongations of the chitin which appear in profile under a high power like sharp protruding spikes driven through the chorion from below. This type of chorion is wholly distinct from any other so far known in the Masiceratidæ or elsewhere in the Muscoidea. The structure and spines of egg-chorion are shown in Figs. 147 and 148 of Contr. Th. Knowl. Musc. Flies.

Type, TD390 (fly and slide of eggs and maggots).

The type of tribe Euceromasiini as well as of genus.

Otomasicera patella, new genus and new species.

One female, Melrose Highlands, Mass., June 8, 1909, collected by Mr. W. R. Thompson. Uterus contained many black microtype eggs. The egg is limpet-like, being flattened on under surface and showing dorsally a short-subconic profile, the dorsal portion with subcontinuous irregular concentric veins or wrinkles apparently formed by thickenings of the chorion. The chorion between the concentric veins is net-like in structure in the peripheral region but denser and with fewer punctures in the central region. There is no honeycomb reticulation. The egg, chorion structure and cephalopharyngeal skeleton of first-stage maggots are shown in Figs. 168 to 171 of Contr. Th. Knowl. Musc. Flies.

Type, TD2714 (fly and 2 slides of eggs with a few partly developed maggots).

This is type of tribe Otomasiceratini as well as of genus.

Cnephalomyia floridana, new genus and new species.

Cnephalomyia floridana gen. et sp. nov., TD877—Ann. E. S. Am., Vol. IV, pp. 132 and 144–5.

Numerous specimens of both sexes taken on flowers of *Eupatorium* a few miles north of Miami, Florida, and at White Springs, Fla., during October and November, 1908. Allied to *Cnephalodys* on reproductive and egg characters, and approaching *Cnephalia* in general habitus. The uterus is very long and tube-like, rather or quite slender, in very many coils, and contains up to some five thousand microtype eggs. Differs at once from *Cnephalia* not only in certain external adult characters to be pointed out later, but also in the peculiar form of the eggs in utero. Both white or undeveloped and black or maturing eggs are elongate and appear with the low power of the binocular to be quite sharply pointed at each end but more tapered at cephalic end, reminding one of microscopic miniatures of certain grass-seeds. Many females were dissected, and in all of them without exception all the eggs, both white and black, were of this same form. In the entire lot of material, however, not one egg containing a fully-developed maggot could be found. The early embryos were numerous, but none showed even the beginnings of the cephalopharyngeal skele-

ton. The form of the maggot is unmistakably indicated in these early embryos, being elongate-subcylindrical and slightly tapered at cephalic end. Examination with high power shows the chorion, when flattened out, to be subovate, and the ends of the embryo of the egg-substance, enclosed in the vitelline membrane, to protrude obtusely at each end, thus giving the pointed effect to the egg as seen with the low power. The chorion is conspicuously honeycomb-reticulate in almost perfect hexagons, the whole evenly interspersed with fine punctulations. The eggs and chorion structure are shown in Figs. 181 to 186 of Contr. Th. Knowl. Musc. Flies. The spermathecæ are large, and the ovaries are composed of many ovarioles. The fly is slate-colored and pollinose, of practically the same size and general appearance as the North American species of *Cnephalia* and the European *Spallanzania hebes*.

Type, TD877 (fly, slides of eggs and dissection of uterus).

Described from TD492, 513, 576, 705, 706, 824, 877, 896, and others.

The present species is the type not only of this genus but of the subfamily Cnephalomyiinæ.

Phasiopteryx montana, new species.

Phasiopteryx sp. (Colorado), TD1791—Ann. E. S. Am., Vol. IV, pp. 136–7.

One female, labeled "Col.," in U. S. N. M. collection. This fly does not differ in external characters from *Phasiopteryx bilimeki* B. B., of southern Mexico, so far as is yet known. The specimen was in fact determined by B. & v. B as that species. The uterus is very long and slender, irregularly coiled. In the dried specimen the coils of the uterus adhered to the inside of the dorsal abdominal walls, and the dark smoke-brown maggots were seen through the light yellow of the tergites like dark specks in the body wall. The maggot is isopodiform, flat and broad-elongate when extended, showing lateral emarginations due to the lateral segmental plates, in general outline elongate-ovate to ovate, more pointed anteriorly, strongly suggesting an isopod without appendages. Color pale reddish-brown to chestnut-brown. There are thirteen recognizable segments, of which the second apparently corresponds to segment II of Hewitt, for it is not likely from the position of the cephalopharyngeal skeleton that it represents his segments II and III of *Musca*. The thirteenth segment is probably double and represents the last two primitive body segments.

For convenience of description the segments will be referred to as the first to thirteenth, which are the apparent segments. First segment (pseudocephalon) small and tubercular, often retracted; segments three to twelve are chitinized on sides and dorsum. Segments five to eleven are composed apparently of six sclerites, or plates each; one dorsal, one ventral, and two lateral on each side. Segment four is probably composed thus, but does not show the plates so clearly. The posterior margins of dorsal plates of segments three to eleven overlap the anterior margins of the succeeding dorsal plates in each case. The ventral plates are whitish and membranous. The dorsal plates are deeply tinged and chitinized, the dorsolateral more deeply chitinized, and the ventrolateral hardly less so. Dorsal plates three to eleven show in hind margin eight small round holes or light unchitinized spots, which are probably the scars or origins of detached bristles, three being usually in a triangle on each side and one outside of them. The ventrolateral plates each bear one of these hole-like dots in hind margin. The ventral plates show none, but are covered with very minute, short, dot-like spines with a row of longer spines on front border. The dorsolateral plates each bear one of the hole-like dots. The lateral plates are so arranged as to show one lateral row of double leaf-like plates lying apparently free, the posterior edges of one set overlapping the bases of the next, as may be seen in the below-mentioned figure, extending thus the length of body on each side from segments four to eleven inclusive. Segment thirteen is terminated by four rather sharp tubercles in a horizontal row, each surmounted by a spine-like bristle, the outer one on each side being stronger than the two inner ones. The small lateral plates of segment twelve, which consist of only one on each side, taper posteriorly to a point and are surmounted by a bristle. Between these, but on the dorsum of thirteenth segment, are the two anal stigmatal plates, appearing as two small rounded tubercles, and just in front of each is a very small shortened tubercle surmounted by a very short seta. Each anal stigmatal plate bears four bristle-scars on its periphery, and outside the area of the stigmatal openings. The first two segments and anterior half of third are covered with the same minute dot-like spines as the ventral plates. The cephalopharyngeal skeleton occupies the first to fourth segments inclusive, and shows a strong approach to those of *Spathidexia* and *Ophirion*. The upper wing of pharyngeal

sclerite is strong, curved, spur-like, the lower wing strong, spine-like. The infrapharyngeal sclerite is present and distinct, the infrahypostomal likewise. The mandibular is enlarged and flattened long-ovate or subelliptical in profile, and the labial sclerite is apparently well developed. The maggot and cephalopharyngeal skeleton are shown in Figs. 224 to 226 of Contr. Th. Knowl. Musc. Flies.

Type, TD1791 (fly, and slides of maggots and larvipositor).

Phasiopteryx bilimeki B. B.

Phasiopteryx sp. (Veracruz), TD1791a—Ann. E. S. Am., Vol. IV, pp. 136–7.

One female specimen collected by Herbert Osborn at Orizaba, Veracruz, Jan. 9–16, 1892. This fly is probably *Phasiopteryx bilimeki* B. B., as the type of that species came from Orizaba. For purposes of comparison with preceding, and as a contribution to a better knowledge of these remarkable forms, I give the description of the first-stage maggots taken from this fly. On same general plan as the maggot of *Ph. montana,* and color practically same, but differing as follows: Spines of front borders of ventral plates stronger and in double rows. Minute spines broadly massed along median line of venter, the lateral portions of plates bare. Dorsal plates with minute hole-like dots in a marginal row, not showing any definite arrangement by triangles. The lateral plates do not seem to assume the double, free-lying, laminate arrangement natural to *Ph. montana;* and there are no sharp tubercles or bristles on thirteenth segment, but the very small shortened tubercles each with a very short seta are present just in front of the stigmatal plates. The stigmatal plates are the same, and with the same four peripheral holes in each, but the plates are situated almost terminally on the segment. The twelfth segment has no lateral pointed plates tipped with a bristle. Most extraordinary of all, there are two remarkable talon-clusters or groups of claw-structures just in front of anterior border of third segment, attached to extreme base of second segment and lying one group on each side of the pharyngeal skeleton. Each group consists of an average of seven black, chitinized, tooth-like spines, spurs or short rods, each bearing a strong cat-claw hook, disposed longitudinally side by side, the central one conspicuously larger, the others successively dwindling in size outwardly from the central one. The size of the strongly-hooked

claw is in each case proportional to the size of the rod which forms its base. The cephalopharyngeal skeleton is practically the same as in *Ph. montana.* The egg, maggot, cephalic talon-clusters and cephalopharyngeal skeleton are shown in Figs 220 to 223 of Contr. Th. Knowl. Musc. Flies.

Eutheresia monohammi, new genus and new species.

Eutheresia gen. nov. for Coquillett's *Theresia analis*—Ann. E. S. Am., Vol. IV, p. 149.

This is *Theresia analis* Coqt., attested by labels on specimens in the U. S. N. M. collection, and so far as I can find a MSS. name. Thirteen specimens issued, May 12 to July 17, 1894, from a section of black spruce trunk filled with *Monohammus confusor* grubs. The spruce was killed in August, 1893. (No. 6240? Bur. Ent.) This form is allied to *Sardiocera valida* B. B. (det. *Theresia tandrec* by Coqt.), from which it differs in the longer antennæ and the narrowed instead of widened-ovate abdomen. The first-stage maggot is very similar to that of *Sardiocera valida,* but has the anal processes somewhat shorter, and the posterior edges of all the segments are thin and sharply defined in profile, while those of segments X to XII in *Sardiocera* are knot-like in profile. The integument of forward margin of segments shows a broad band of microscopic rugulosities, most conspicuous and abruptly defined on twelfth segment. The eggs are very slender and pointed. Uterus is short and stout, with a capacity of several hundreds, not running so high as capacity of *Sardiocera,* which is upward of two thousand. The egg, maggot and cephalopharyngeal skeleton are shown in Figs. 231 to 233 of Contr. Th. Knowl. Musc. Flies, and the host-habits are outlined in that paper.

Type, TD1788 (fly, and slide of eggs and maggots). Georgia (C. V. R. Coll.).

Other specimens are TD1415, and the rest of the above series from *Monohammus.* It is probable also that TD1417, labeled "Par. on Cerambycid in chestnut; iss. May 1, '88," is this species.

Protodexia synthetica, new genus and new species.

TD354—Ann. E. S. Am., Vol. IV, pp. 139 and 151.

One female, collected by Mr. D. H. Clemons, Melrose Highlands, Mass., August 14, 1908. This is a small brassy-pollinose fly with a Sarcophagid habitus. It seems to belong in or near the Sarcophaginæ.

The uterus, whose form is unknown, contained about forty maggots. The first-stage maggot is moderately slender, gently tapered at each end, white, with narrow bands of faint spines at the junctures of the segments, the first two anterior bands, especially the first, being usually the broadest and most distinct. The cephalopharyngeal skeleton lacks the dorsopharyngeal sclerite; the pharyngeal sclerite is normally developed in its upper wing, but the lower wing is atrophied and its place is taken by the infrapharyngeal sclerite. The hypostomal and infrahypostomal sclerites are distinct and both paired. The mandibular sclerite is paired and consists of a small but swollen base, passing into a slender and short median arm, and terminated apically by an elongate-subovate leaf-like or spatulate enlargement, while the dentate sclerite is elongate with a tooth at its apical angle. The skeleton is furcate clear to the mandibular leaves, which are more approximated to each other than are the two sclerites forming any of the other pairs. The labial sclerites are only faintly distinguishable. There is no sign of the T-ribs of the pharyngeal floor described and figured by Hewitt. What is more, I have never been able to find any trace of these T-ribs in any first-stage muscoid maggot, and am constrained to believe that they do not occur in this stage. Hewitt's figure of them (Pl. 31, Fig. 18) is from the third stage of *Musca*. The anal stigmatal cavity that characterizes most sacrophagid maggots in all stages does not show. The anal stigmatic tubes are borne ventrally near base of thirteenth segment in a pair of short processes surmounted by two slightly chitinous pointed spines. The maggot and cephalopharyngeal skeleton are shown in Figs. 247 and 248 of Contr. Th. Knowl. Musc. Flies.

Type, TD354 (fly and slide of maggots).

This is type not only of the genus but of the tribe Protodexiini.

In explanation of my later but still tentative interpretation of the segmental homologies in the muscoid maggot, I should state that the dentate is apparently not an ordinate or main sclerite as published by me in Ann. E. S. Am., Vol. IV, pp. 150–1. Leaving out the dentate, which is evidently a development from the mandibular sclerite, the other six form the ordinate sclerites as distinguished from the minor or subordinate sclerites. The six ordinate sclerites plus the pseudocephalon (segment I) and its paired labial sclerite would represent the seven primitive head-segments, or segments I to VII of ancestral

insects. Segments II to IV of the maggot (Hewitt) would represent the three thoracic segments, or segments VIII to X of ancestral insects; and segments V to XIII of the maggot (Hewitt) would represent the ten primitive abdominal segments, or segments XI to XX of ancestral insects, the anal or thirteenth maggot-segment being almost certainly double and representing the last two primitive body-segments. This interpretation is set forth in detail in Contr. Th. Knowl. Musc. Flies, with tentative homologies of the ordinate cephalopharyngeal sclerites.

The fact that thirteen distinct segments can be distinguished in the first-stage maggot of *Phasiopteryx*, of which the cephalopharyngeal skeleton occupies the first four, implies that here segments II and III of Hewitt are not coalesced as in *Musca* and most other types.

INSECTS ON A RECENTLY FELLED TREE.

BY WILLIAM T. DAVIS AND C. W. LENG,

NEW BRIGHTON, N. Y.

On November 14, 1911, we found at Cleveland, near Punta Gorda, Florida, a large pine tree cut down and lying nearly horizontal, supported only by such of its branches as had not been broken or hacked off. The tree was a long leaf pine (*Pinus palustris*) and, as we subsequently learned, it had been felled a week previous to our finding it We beat the branches and the trunk over our umbrellas, scraped the bark off in places, pounded the piles of cut branches, lifting each free from the pile for the purpose, and obtained many insects, principally Coleoptera, in that way, or as they ran away over the ground on being disturbed by us; others were found in the chips about the stump of the tree. The larger and more brilliant species, *Acanthocinus, Monohammus, Temnochila, Chrysobothris*, etc., were easily seen on the trunk and branches, the smaller species were dislodged by our beating sticks, until, after two hours work, a total of 42 species of Coleoptera and 13 species of insects of other orders had been bottled. Over 300 specimens of Coleoptera alone were taken and as many specimens of the more abundant species were allowed to